MARICOPA COUNTY
MAJOR STREETS AND ROUTES PLAN

POLICY DOCUMENT

Adopted April 18, 2001

Revised September 2004

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PREFACE TO 2004 REVISION

This version of the Major Streets and Routes Plan revises the original plan, which was adopted on April 18, 2001. Looking ahead to pending updates to the classification systems of towns and cities in Maricopa County, the original MSRP stipulated a periodic review and modification of the street functional classification portion of the plan. As anticipated, many of the communities in the County have updated either their general or transportation plans in the time since the adoption of the first MSRP. The revised MSRP reflects how these plan updates have impacted Maricopa County's classification system as well as any changes the County has made in the interim to how it classifies its own arterial and collector network. The revised MSRP also contains the latest County roadway cross-sections.

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MARICOPA COUNTY MAJOR STREETS AND ROUTES PLAN POLICY DOCUMENT

1. INTRODUCTION

BACKGROUND

On December 17, 1997, the Transportation System Plan (TSP) for Maricopa County was adopted. The TSP is the implementation component of the transportation element of the Maricopa County Comprehensive Plan. The TSP includes a Planning and Management chapter, which contains a section that calls for the preparation of a Maricopa County Major Streets and Routes Plan (MSRP). The section is repeated here:

> *"A major streets and routes plan (MSRP) will designate and map street widths and route overlays for all primary and secondary roads in the Maricopa County roadway system. It will be developed through an open and participatory process. It should be supported by revision to the portions of the County Code that establish roadway frontage standards and requirements. The County Code should:*
>
> - *Include the MSRP, as adopted by the Board of Supervisors.*
> - *Stipulate reasonable and rational justification for the roadway frontage limits, standards, and requirements. This justification may help avoid or overcome legal challenges, should they occur.*
> - *Establish building, structure, and utility setback requirements for streets and routes relative to MSRP street widths.*
> - *Define route overlays and establish specific standards and requirements for route overlay designations.*
>
> *A MSRP is an important tool for planning future development along County roads. It insures adequate visibility and access, protects property values and the neighborhood character, and enhances the unique qualities of County areas. It also minimizes unnecessary costs and impact to property owners and the public as designated roadways are improved.*
>
> *Other roadway planning and development issues can be effectively addressed through overlay designations in the MSRP."*

MSRP COMPONENTS

The MSRP includes two components:

- A Street Classification Map that designates the future functional classification for the arterial and collector portion of the 2626 miles of roads that are in the County Road Inventory System as of April 1, 2004.

- This Policy Document to support the Street Classification Map

Following this introductory chapter, the MSRP Policy Document includes:

- Chapter 2. Functional Classification System

- Chapter 3. Geometric Design Standards

- Chapter 4. Overlays

- Chapter 5. General Policy Statements

2. FUNCTIONAL CLASSIFICATION SYSTEM

Functional classification is the process by which roads are grouped into classes or systems according to the kind of service they provide. The basic functional systems used in the MSRP are expressways, principal arterials, minor arterials, major collectors, minor collectors, and locals. Using national classification terminology, these systems are classified based on the trips served and the operational characteristics of the streets or highways.

EXPRESSWAY

An expressway provides for the expeditious movement of large volumes of through traffic; is a divided roadway and is not intended to provide access to abutting land; will have complete separation of opposing traffic flows; and will have grade separated intersections or at-grade, signalized intersections at a minimum of one-mile spacing.

An expressway has the following service characteristics:

- Traffic movements with very long trip lengths
- Traffic movements at high speeds
- Traffic movements with no direct access to adjacent land

An expressway is four or more lanes in width constructed on 300 feet of right-of-way.

PRINCIPAL ARTERIAL STREET

A principal arterial street provides for long distance traffic movement within Maricopa County or between Maricopa County and urban areas. Service to abutting land is limited. Access is controlled through frontage roads and raised medians, as well as the spacing and location of driveways and intersections. Opposing traffic flows are separated often by a raised median.

A principal arterial has the following service characteristics:

- Traffic movements with long trip lengths
- Traffic movements consisting of through and major circulation movements
- Traffic movements involving a large portion of the total vehicle-miles of travel on a minimum of mileage
- Traffic movements at moderate speeds

A principal arterial is four to six lanes in width constructed on 130 feet of right-of-way. A bike lane is included in the cross-section. Right-of-way for a future bus pullout should be

provided on the far side of each intersection of a principal arterial with another principal or minor arterial.

MINOR ARTERIAL STREET

A minor arterial street provides for moderately long distance traffic movement within Maricopa County or between Maricopa County and urban areas. Moderate access is provided to abutting land. Access is controlled through frontage roads, raised medians, and the spacing and location of driveways and intersections. A raised median or a continuous left-turn lane separates opposing traffic flows.

A minor arterial has the following service characteristics:

- Traffic movements consisting of major circulation movements with more emphasis on land access than principal arterials
- Traffic movements do not penetrate residential neighborhoods
- Traffic movements at moderate speeds

A minor arterial is four lanes in width constructed on 130 feet of right-of-way. A bike lane is included in the cross-section. Right-of-way for a future bus pullout should be provided on the far side of each intersection of a minor arterial with a principal arterial or another minor arterial.

MAJOR COLLECTOR STREET

A major collector street provides for short distance (less than three miles) traffic movement; primarily functions to collect and distribute traffic between local streets or high volume traffic generators and arterial streets; and provides direct access to abutting land. Raised medians and the spacing and location of intersections and driveways may control some access.

A major collector has the following service characteristics:

- Traffic movements between traffic generators and routes of a higher classification
- Traffic movements consisting of both land access service and traffic circulation
- Traffic movements subject to high levels of median and side friction
- Traffic movements which penetrate residential neighborhoods, commercial, and industrial areas

A major collector is two to three lanes in width constructed on 80 feet of right-of-way. A bike lane is included in the cross-section.

MINOR COLLECTOR STREET

A minor collector street provides for short distance (less than three miles) traffic movement; primarily functions to collect and distribute traffic between local streets and arterial streets; and provides direct access to abutting land. The spacing and location of intersections and driveways may control some access.

A minor collector has the following service characteristics:

- Traffic movements between local streets and major collectors or routes of a higher classification
- Traffic movements between locally important traffic generators within remote regions
- Traffic movements consisting of both land access service and traffic circulation
- Traffic movements subject to high levels of median and side friction

A minor collector is two lanes in width constructed on 60 feet of right-of-way.

LOCAL STREET

A local street provides for direct access to residential, commercial, or other abutting land, and for local traffic movements. Local streets connect to collector or arterial streets.

A local street has the following service characteristics:

- Traffic movements between adjacent lands and collectors or other roads of higher classification.
- Traffic movements over relatively short distances, less than one-half mile long in most cases.
- Traffic movements subject to frequent driveway access.

A local street is a two-lane roadway constructed on 50 feet of right-of-way.

SPECIAL CIRCUMSTANCES CLASSIFICATION

There are road classifications used by cities and occasionally in Maricopa County that do not fit conveniently in any of the six functional classifications defined in the MSRP. These special roads either do not occur often enough to warrant their own classification or they combine characteristics in such a way that they cannot be classified as a typical expressway, arterial, collector or local street.

In these instances, the County Engineer or his or her designer will make the decision as to when and where these cross-sections will be applied. This can be based on approved general plans, capacity requirements or other circumstances requiring an alternative cross-section. These special circumstances may require additional ROW, number of lanes, urban or rural

designation or other unique design requirements. While not a standard cross-section in the MSRP, many communities in Maricopa County are including an enhanced arterial, or superstreet, in their general plans.

ENHANCED ARTERIAL STREET

An enhanced arterial street provides a level of service below that of an expressway but greater than that of a principal arterial street. A high level of access management is maintained by ramps and frontage roads. Raised medians or barriers separate directions of travel. Grade-separated intersections eliminate traffic signals at major cross streets, while signalization occurs at minor and collector streets at approximately one-mile intervals. Free-flow traffic connections link to freeways and expressways.

An enhanced arterial street has the following service characteristics:

- Traffic movements with long trip lengths
- Traffic movements with capacity twice that of typical arterial street
- Traffic movements at speeds higher than typical arterial streets

3. GEOMETRIC DESIGN STANDARDS

The previous chapter presented the functional classification system used by Maricopa County to classify County streets. Presented in this chapter are the general geometric design standards associated with each classification. Refer to MCDOT Roadway Design Manual for specific design guidance.

ROADWAY CROSS-SECTION

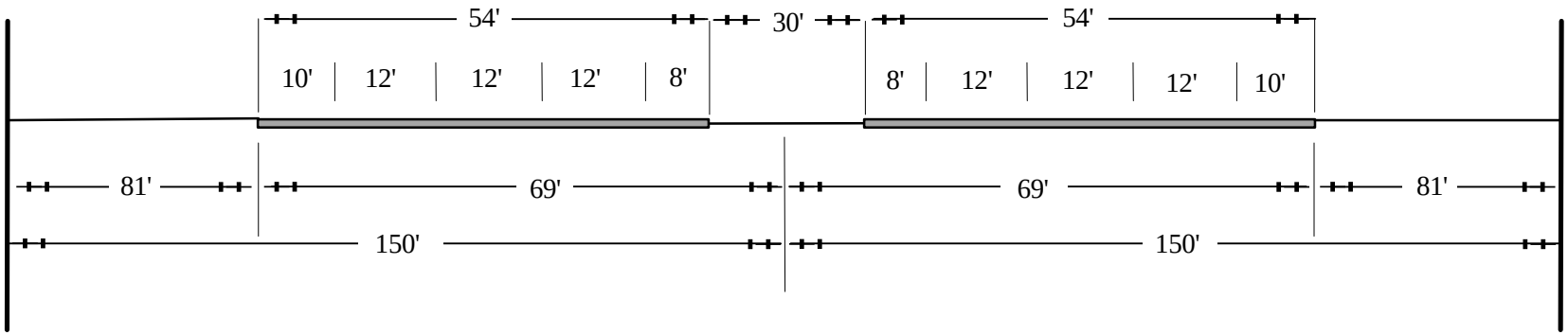
The urban street width, right-of-way requirements, and basic number of lanes are provided in Table 3-1 (in feet). The cross-sections for expressway, principal arterial, minor arterial, major collector, minor collector, and local street classifications are shown graphically in Figures 3-1 through 3-6.

**TABLE 3-1. ROADWAY/ROW WIDTH*
(IN FEET)**

Classification	Roadway/ROW Width (feet)	Number of Lanes
Expressway	138/300	6
Principal Arterial	101/130**	6
Minor Arterial	73/130	5
Major Collector	49/80	3
Minor Collector	40/60	2
Local	28/50	2

* See overlay maps for additional right-of-way requirements. Additional right-of-way may be required in mountainous terrain. The MCDOT Roadway Design Manual should be consulted for additional right-of-way requirements at intersections.

** Rural Principal Arterial requires 150 feet of right-of-way. MAG RRS roads requires 140 feet of right-of-way.

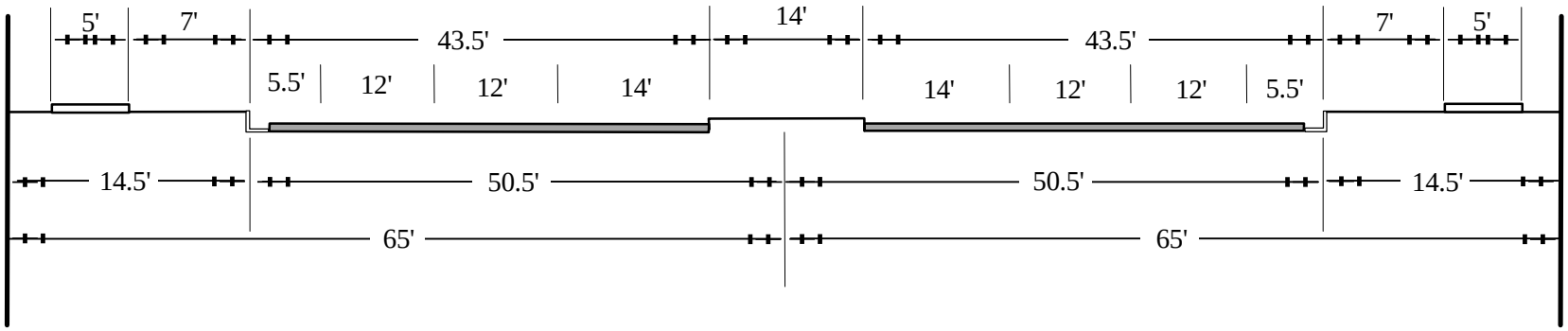


N.T.S.

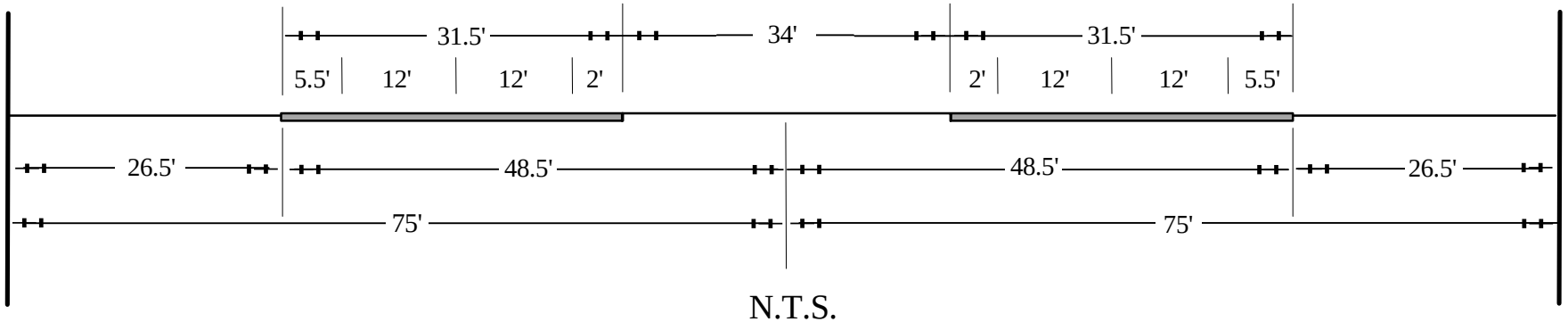
Notes: * Dimensions measured from face-of-curb or edge of pavement
* Interim roadway width to be determined by traffic study

Maricopa County Department of Transportation Geometric Design Standards	EXPRESSWAY	FIG. 3-1

URBAN CROSS-SECTION



RURAL CROSS-SECTION

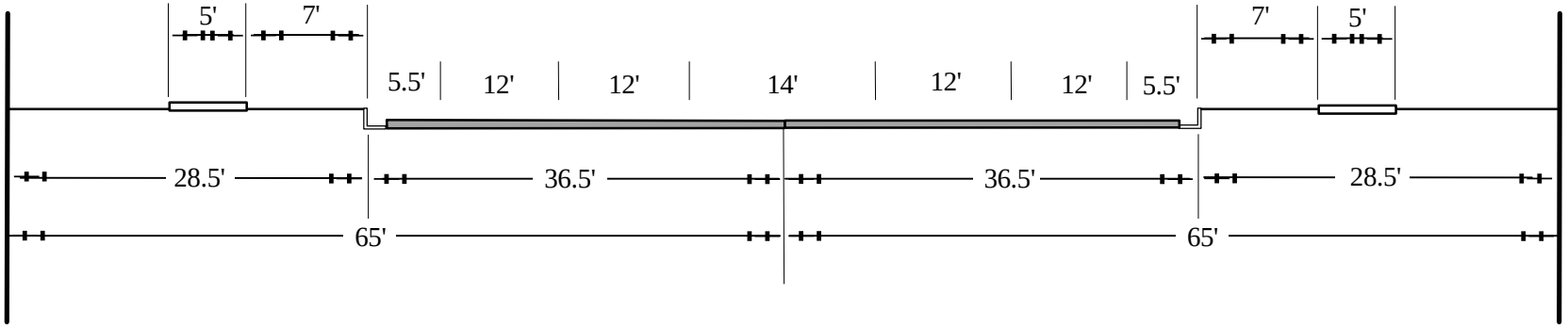


N.T.S.

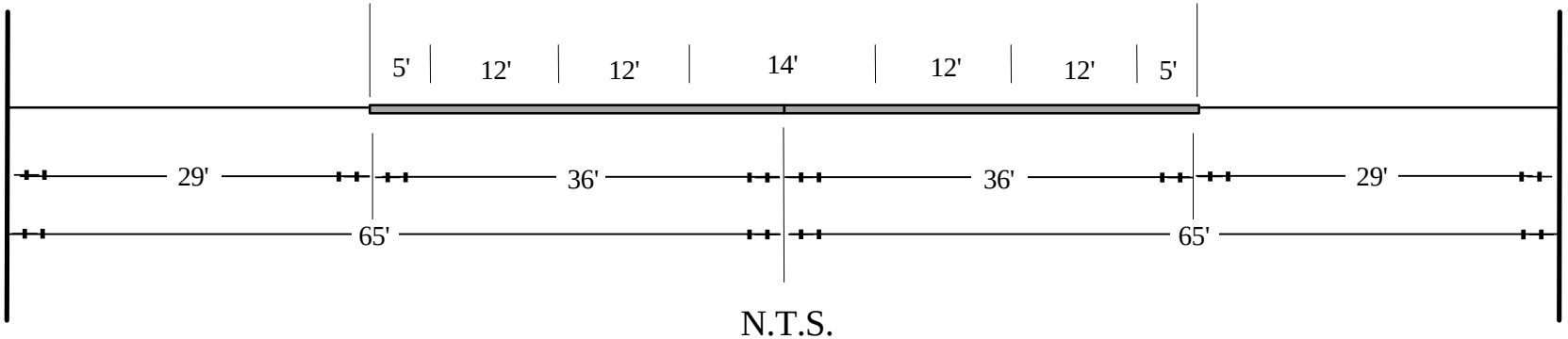
Notes: * Dimensions measured from face-of-curb or edge of pavement
* Interim roadway width to be determined by traffic study

Maricopa County Department of Transportation Geometric Design Standards	PRINCIPAL ARTERIAL	FIG. 3-2

URBAN CROSS-SECTION



RURAL CROSS-SECTION

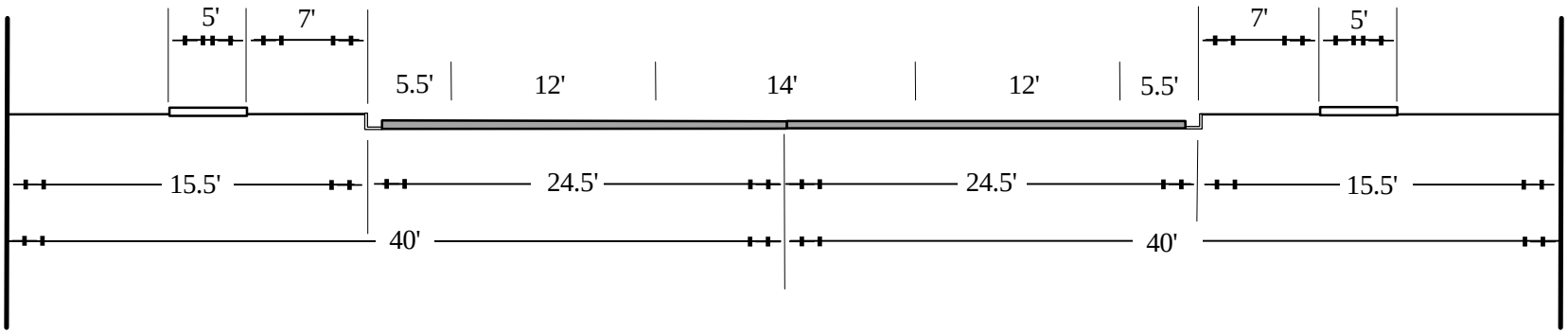


N.T.S.

Notes: * Dimensions measured from face-of-curb or edge of pavement
* Interim roadway width to be determined by traffic study

Maricopa County Department of Transportation Geometric Design Standards	MINOR ARTERIAL	FIG. 3-3

URBAN CROSS-SECTION



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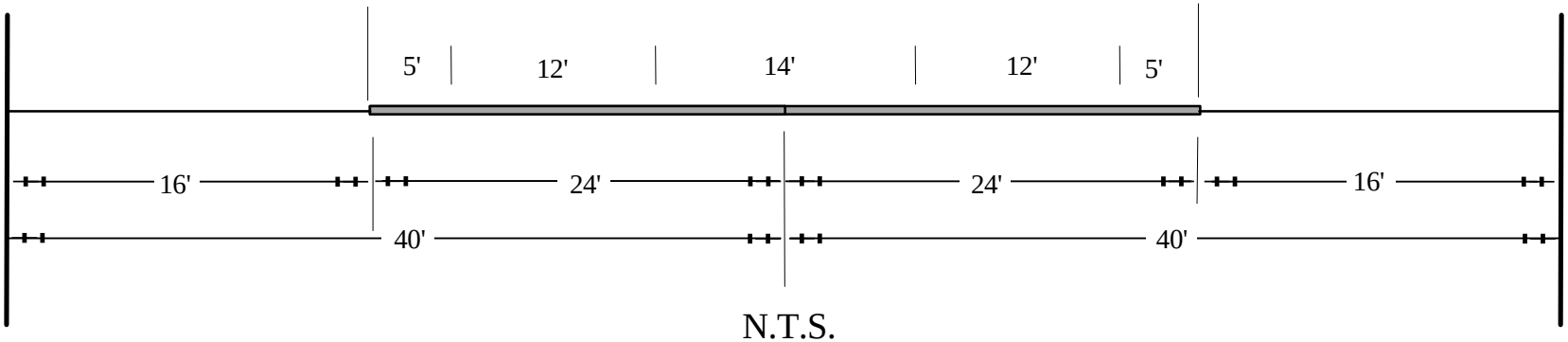

N.T.S.

Notes: * Dimensions measured from face-of-curb or edge of pavement
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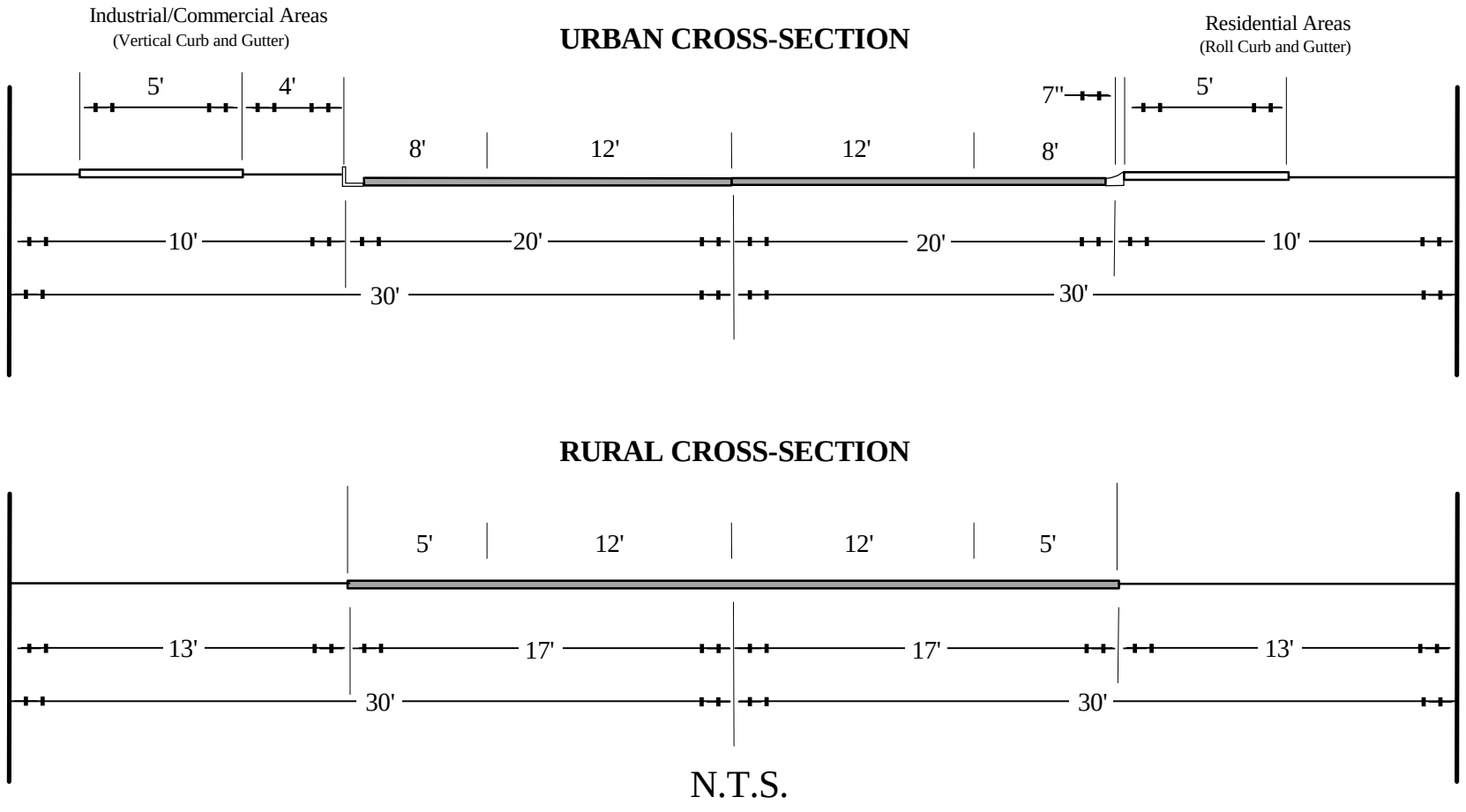
Maricopa County Department of Transportation Geometric Design Standards	MAJOR COLLECTOR	FIG. 3-4

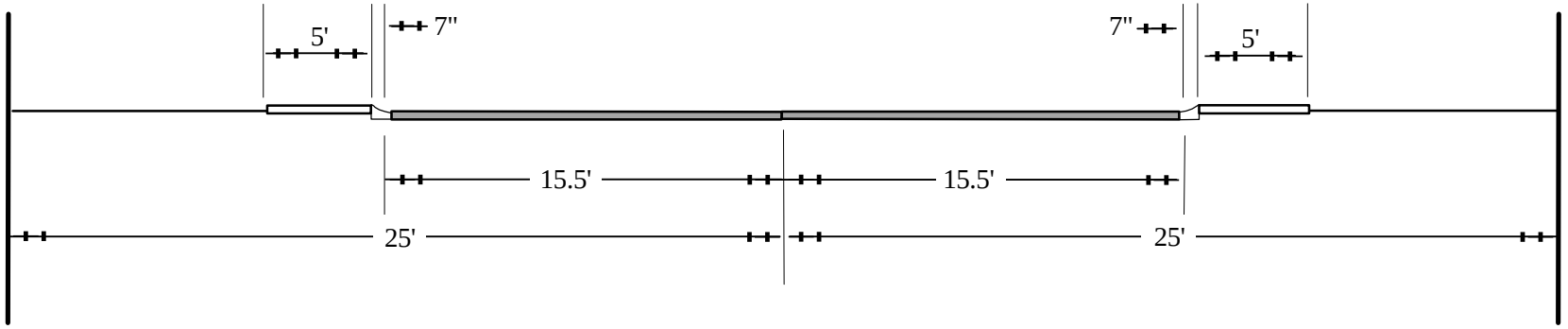


N.T.S.

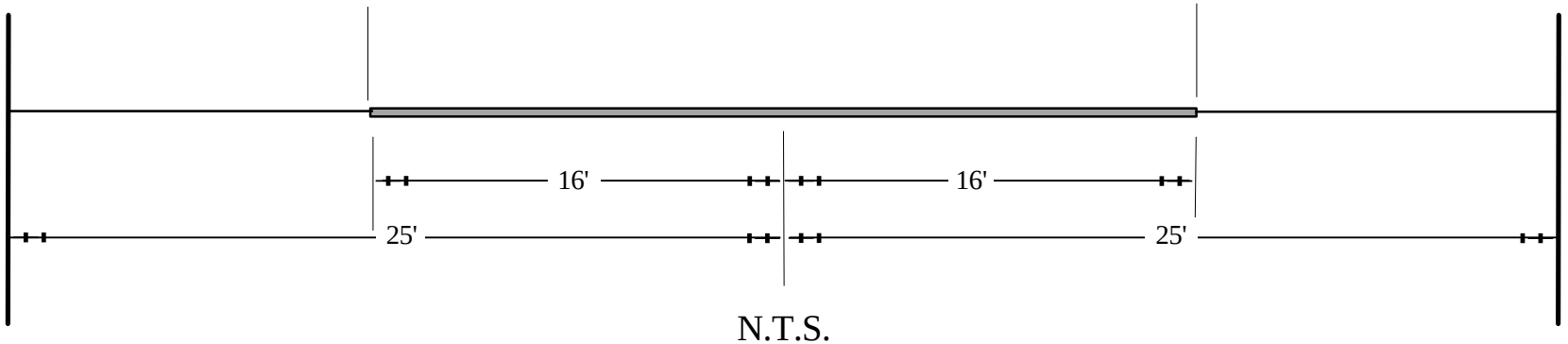
Notes: * Roadway dimensions measured from face-of-curb or edge of pavement
* Interim roadway width to be determined by traffic study

Maricopa County Department of Transportation Geometric Design Standards	MINOR COLLECTOR	FIG. 3-5

URBAN CROSS-SECTION



RURAL CROSS-SECTION



N.T.S.

Notes: * Roadway dimensions measured from face-of-curb or edge of pavement
* Interim roadway width to be determined by traffic study

Maricopa County Department of Transportation Geometric Design Standards	LOCAL RESIDENTIAL STREET	FIG. 3-6

Right-of-Way Width

The right-of-way width ranges from 300 feet for the expressway classification to 50 feet for local streets. Principal and minor arterials require 130 feet, major collectors require 80 feet, and minor collectors require 60 feet. In order to maintain a 30 feet clear zone on rural principal arterials without curb-and gutter, 150 feet of right-of-way will be required.

Additional right-of-way may be required at some locations:

- Intersections: an additional 20 feet of right-of-way will be required at all arterial/arterial (principal or minor) intersections to accommodate turn lanes and bus pull-outs. The Maricopa County Department of Transportation (MCDOT) Roadway Design Manual should be consulted for specifics. Exceptions may be granted by the MCDOT Director or an authorized representative.

- Overlays: maps identifying scenic/recreational, public transportation, AZTech, oversize load, school safety, and Roads of Regional Significance routes should be consulted to determine if additional right-of-way is required. The overlay maps are included in the Appendix to this Policy Document.

- Mountainous terrain: additional right-of-way may be required to satisfy design considerations in mountainous terrain.

GEOMETRIC DESIGN CONSIDERATIONS

Urban or Rural Designation

Each figure includes cross-sections for rural and urban conditions, the difference being that the urban sections include curb-and-gutter. Dimensions of urban sections are measured to the face of the curb assuming an 18-inch gutter pan.

As a basic rule, Maricopa County will build a rural section (without curb-and-gutter) unless one of the two following situations are present:

- The subject section is a continuation of a roadway with curb-and-gutter.

- A municipality is planning to annex the roadway and assumes the cost for upgrading the roadway to an urban section.

A determination of the appropriate section (urban or rural) for each roadway will be made as part of the Candidate Assessment Report or Design Concept Report phase of project development. Depending upon existing conditions, an interim urban roadway, with or without curb-and-gutter, may be constructed.

Based upon growth projections for Maricopa County, adopted by the Maricopa Association of Governments (MAG), it is anticipated that, with some exceptions, all principal and minor arterial streets within the area east of Perryville Road and north of Hunt Highway will be urban and, thus, have curbs-and-gutters by the year 2020. A density of one or more dwelling units per acre was used to define urban (Figure 3-7). The exceptions are:

- Streets within the Gila River Indian Community
- Streets within the Salt River Pima-Maricopa Native American Community
- Streets within the Tonto National Forest
- Loop 303

Number of Lanes

The basic width for expressways and principal arterials is six lanes plus a median. Minor arterials have five lanes and major collectors have three lanes, both including a two-way-left-turn-lane. Minor collectors and locals each have two lanes.

Based upon a traffic study, the number of lanes constructed as part of the initial project may be less. The primary criteria to be used in determining the appropriate number of lanes is that the roadway should handle the twenty-year forecast traffic at Level of Service C or better.

Bicycle Lanes

Bicycle lanes are included in the standard cross-sections for all principal arterial, minor arterial, and major collector streets. Bicycles are also accommodated on minor collector and local streets with wide outside lanes, possibly sharing a parking lane. Bicycles are not allowed on expressways throughout the urban area.

The minimum bike lane width on an urban street with curb-and-gutter shall be four feet, measured from the edge of the vehicle lane to the edge of the gutter pan. The minimum bike lane width on non-curbed rural streets shall be five feet.

The MCDOT Roadway Design Manual should be consulted for further details.

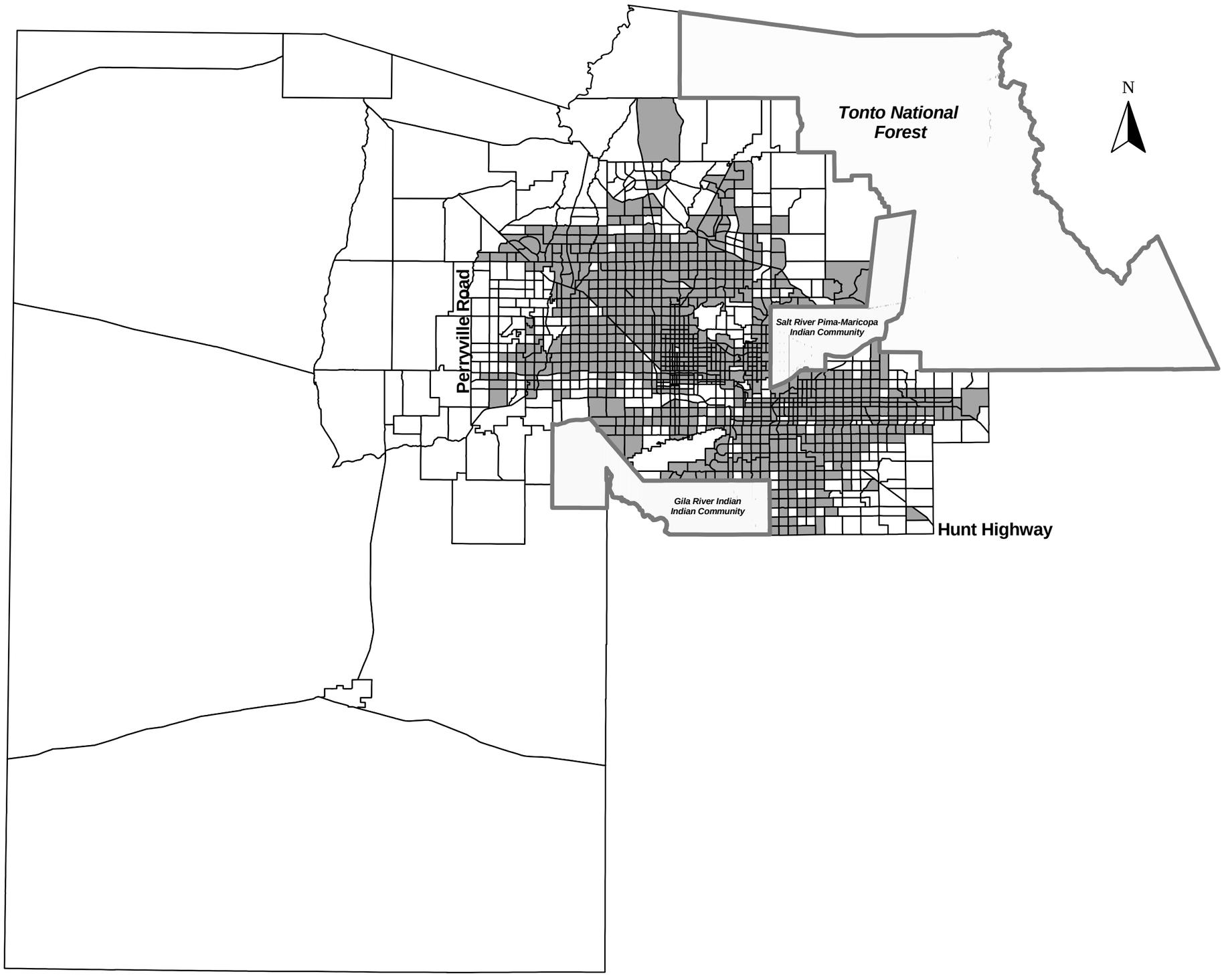


FIGURE 3-7
ESTIMATED DWELLING UNIT DENSITY IN 2020

Dwelling Units Per Acre

- **0 - 0.99**
- **1 - 15.2**

Bus Pullouts

Right-of-way for bus pullouts and shelters should be preserved at all intersections of all principal arterial/principal arterial, principal arterial/minor arterial, and minor arterial/minor arterial intersections. The intersection layout for bus pullouts is shown in Figure 3-8. See the MAG Uniform Standard Specifications for Public Works Construction for details.

ACCESS MANAGEMENT

The purpose of this section is to provide recommended practices for the management of vehicular access to all County-owned roadways.

Access management is defined as the regulation of vehicular access to public roadways from adjoining property. This is provided through legal, administrative, and technical strategies available to a political jurisdiction under its police powers in order to maintain the health, safety, and welfare of the jurisdiction's residents. Access management regulates the level of access control on roadways and is needed to help retain the capacity of public highways, maintain public safety, and retain access to private land.

The following access management guidelines have been taken from the MCDOT Roadway Design Manual. ***Refer to the Design Manual for the latest access management policy.***

Driveway Spacing

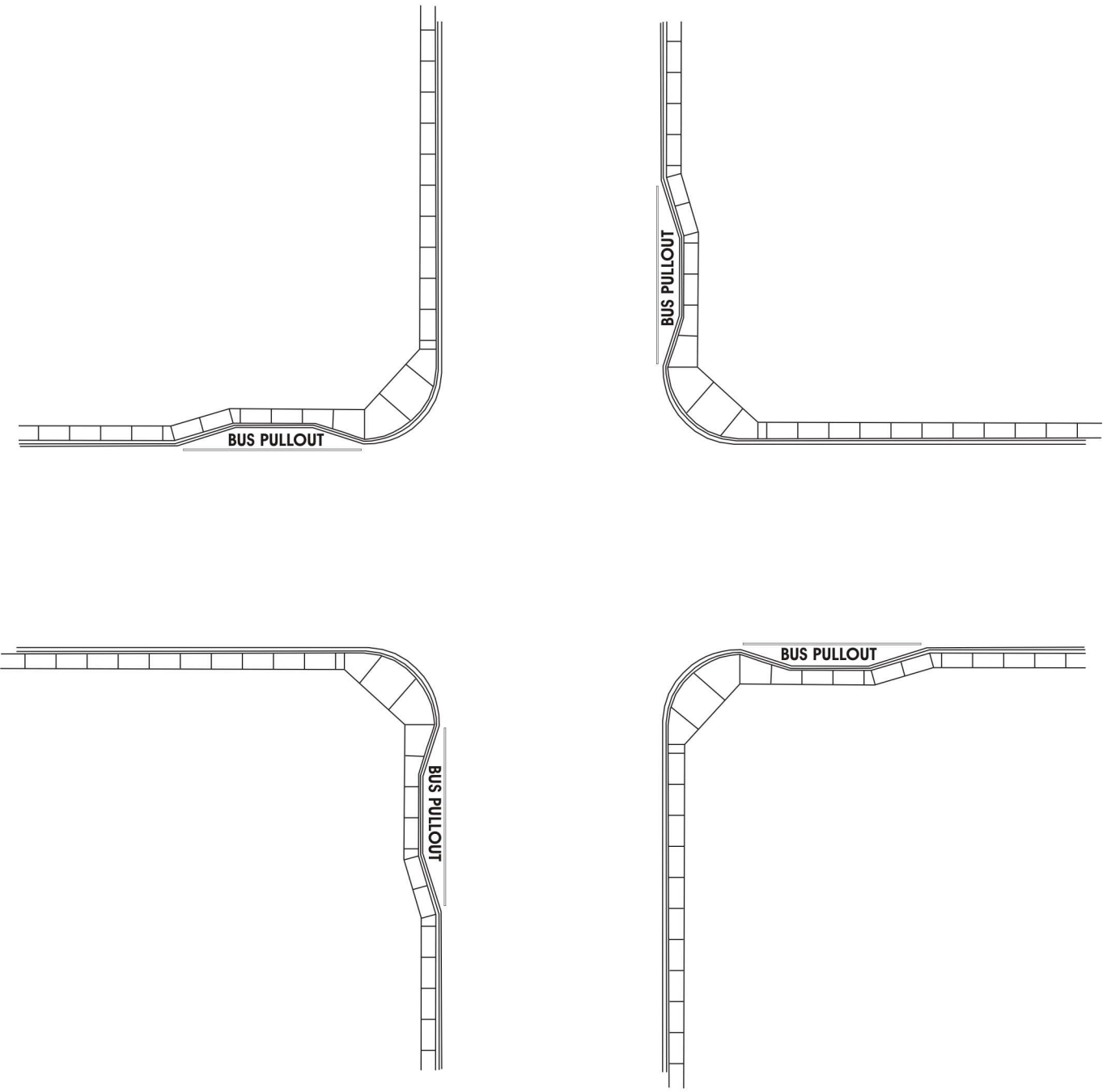
The distance between adjacent driveways must be adequate to allow driveway vehicles to safely queue, accelerate, decelerate, and cross conflicting traffic streams without excessive interference with through traffic, or traffic using adjacent driveways. Table 3-2 lists the minimum driveway spacing for arterial and collector streets with a design average daily traffic (ADT) of greater than 5,000. These distances, which are acceptable for the indicated types of road speed or land uses, are measured from driveway centerline to driveway centerline.

Joint access will be required for two adjacent developments where a proposed new access will not meet the spacing requirements set forth in this section and it must be approved by the MCDOT Director or an authorized representative.

Driveway Corner Clearance

Driveways located near a major intersection or median shall meet the requirements shown in Figure 3-9.

FIGURE 3-8.
BUS PULL-OUT LOCATION SCHEMATIC



Note: For more detail see Maricopa Association of Governments,
Uniform Standard Specifications for Public Works Construction, 1998.

TABLE 3-2. DRIVEWAY SPACING

Land Use	Posted Speed	Driveway Type*	Arterial/Collector Min. Spacing (Ft.)
Single Family	20	S-1	65
Single Family	25	S-1	65
Single Family	30	S-1	85
Single Family	35	S-1	85
Single Family	40	S-1	105
Single Family	45	S-1	105
Single Family	50 & >	S-1	105
Multi-Family	(Low volume)	M-1	65
Multi-Family	(High volume)	M-2	330
Commercial	All	CL-1	165
Commercial	All	CH-2	330
Industrial	All	CL-1	165

*S-1: Single family; M-1: Low volume residential; M-2: High volume residential;
CL-1: Low volume commercial; CH-2: High volume commercial opposite median openings

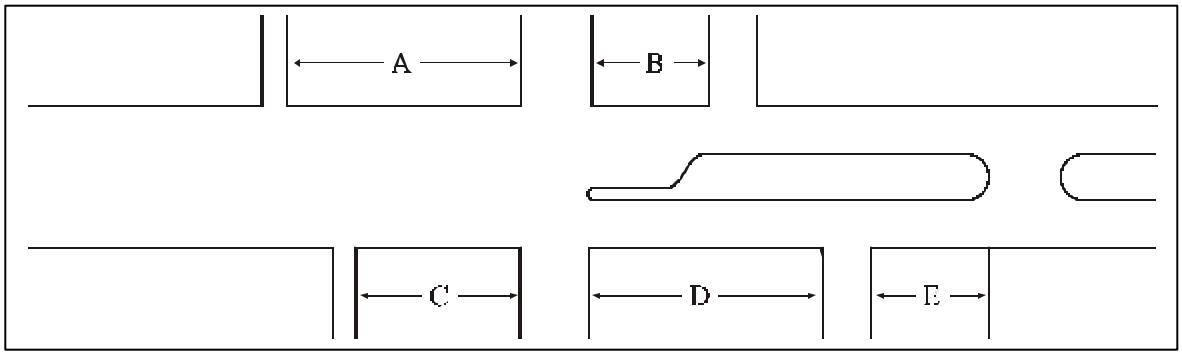
Driveway Location Restrictions

A new driveway or a driveway with changed access will not be allowed under the following conditions:

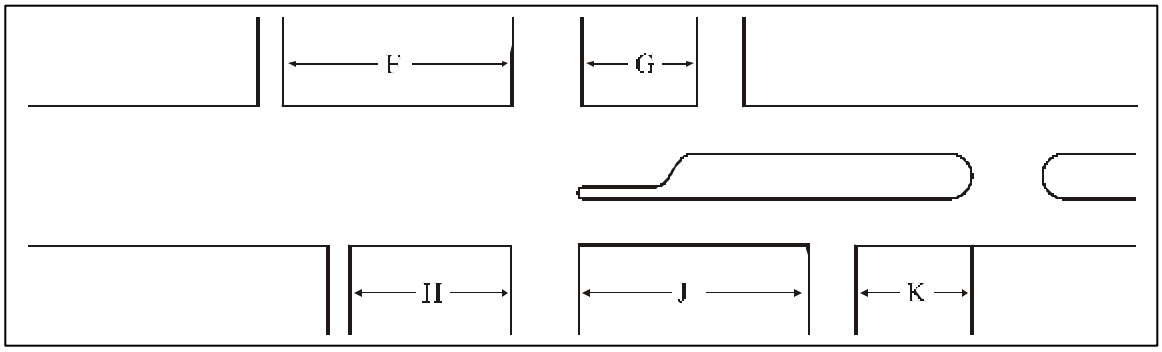
- Within 10 feet of any commercial property line, except when it is a joint-use driveway serving two abutting commercial properties and access agreements have been exchanged between and recorded by the two abutting property owners
- Within 25 feet of a guardrail ending
- Within 100 feet of a bridge or other structure, except canal service roads
- Within the minimum spacing as established in this section
- When adequate sight distance cannot be provided for vehicles on the driveway attempting to access the street, as those movements will be prohibited
- When the nearest edge of any driveway flare or radius must be at least 2 feet from the nearest projection of a fire hydrant, utility pole, drop inlet and/or appurtenances, traffic signal, or light standards
- For parking or loading areas that require backing maneuvers in a public right-of-way except for single-family or duplex residential uses on local roads

FIGURE 3-9. MINIMUM CORNER CLEARANCES

Signalized Intersections			
Item	Functional Classification of Road		
	Arterial	Collector	Local
A	230	175	50
B	115	85	50
C	230	175	50
D	230	175	50
E	75	75	0



Stop Sign Intersections			
Item	Functional Classification of Road		
	Arterial	Collector	Local
F	115	75	50
G	115	85	50
H	85	85	50
J	115	75	50
K	75	0	0



If a property has frontage on more than one street, access will be permitted only on those street frontages where standards contained in this manual and other County Regulations can be met.

If a property cannot be served by any access point meeting these standards, the County may designate one or more access point(s). These can be based on traffic safety, operational needs, and conformance to as many of the requirements of these guidelines as possible. This does not constitute a guarantee by the County to provide access to a property.

Exceptions may be made by the MCDOT Director, or an authorized representative, where the application of these standards would create an undue hardship to the abutting property owners and good traffic engineering practices can be maintained.

Driveway Location Coordination

The location of access for properties on opposite sides of principal and minor arterials and major collectors shall be coordinated so that they do not interfere with each other.

- Driveways should be located directly opposite each other to ensure that they share a single access location.
- Where lots are not large enough to allow accesses on opposite sides of the street to be aligned, the center of driveways not in alignment will normally be offset a minimum of 150 feet on all collector roads, and 330 feet on all industrial, major collector, and arterial roads. Greater distances may be required if left turn storage lanes require them.

Variances

Variances from these driveway criteria may be granted by MCDOT.

4. OVERLAYS

BACKGROUND

The TSP introduces the concept of overlays for the roadway system within the County, stating that "overlays acknowledge the special importance of roads for purposes other than mobility." During the development of the MSRP, the overlay concept was reviewed and six overlays were identified for inclusion in the MSRP:

- Scenic/Recreational
- Public Transportation
- AZTech
- Oversize Load
- School Safety
- Roads of Regional Significance

Each overlay is discussed in this chapter.

SCENIC/RECREATIONAL OVERLAY

"The scenic/recreational overlay acknowledges the need to minimize impacts to, or preserve, characteristics of a road's environment, or it recognizes a road's importance as access to recreational facilities. Characteristics such as design speeds, right-of-way, cuts and fills, existing vegetation and viewsheds will be carefully analyzed for these roadways."

Discussion

The dual purposes of the scenic/recreational designation are to protect the scenic environment and to provide access to recreational facilities. The designation is applied irrespective of functional classification; i.e., any road from a two-lane dirt road to a six-lane arterial could carry the scenic/recreational designation.

The goals of designating a roadway as scenic/recreational are to protect the natural and scenic environment and to maintain natural landscaping, as well as to provide access to recreational facilities. The effects of being so designated might include access management, land use controls, and increased setbacks. Funding advantages may be available with this designation through the State's scenic roadways program or through public lands transportation funding the Arizona Department of Transportation (ADOT) receives as part of the Transportation Equity Act for the 21st Century (TEA-21).

Factors that should be considered when determining the scenic/recreational designation for a roadway include:

- Non-developed Federal or State land
- Visual resources and vistas
- Natural resource preservation
- Species habitat
- Animal trail crossings
- Direct access to recreational facilities

Recommendation

The scenic/recreational overlay designating routes to protect the scenic environment and/or to provide access to recreational facilities is included in the MSRP (Figure 4-1).

Design Parameters

The following design parameters will apply to all roadways designated as scenic/recreational routes:

- A scenic easement of a minimum of 50 feet should be added on each side of the right-of-way to provide for a wider corridor of natural habitat preservation and to preserve a buffer between traffic and development.
- Special signage identifying the roadway as a scenic corridor shall be included.
- Design and construction materials used should maintain or enhance the character that exists in the corridor.
- Landscaping should be compatible with the surrounding natural landscape.
- Roadway design should follow the contours of the natural terrain.

Statutory Issues

Article 1.3 of Title 41 of the Arizona Revised Statute (ARS) deals with the "establishment of parkways and of historic and scenic roads." Of interest to this discussion is ARS 41-516, which "to ensure the protection and enhancement of special features for . . . scenic roads," allows "an exemption from the standards normally applied to the construction and maintenance of the roads." Thus, as long as the safety and service of the traveling public is maintained, design exceptions may be granted on roadways designated on the scenic overlay.

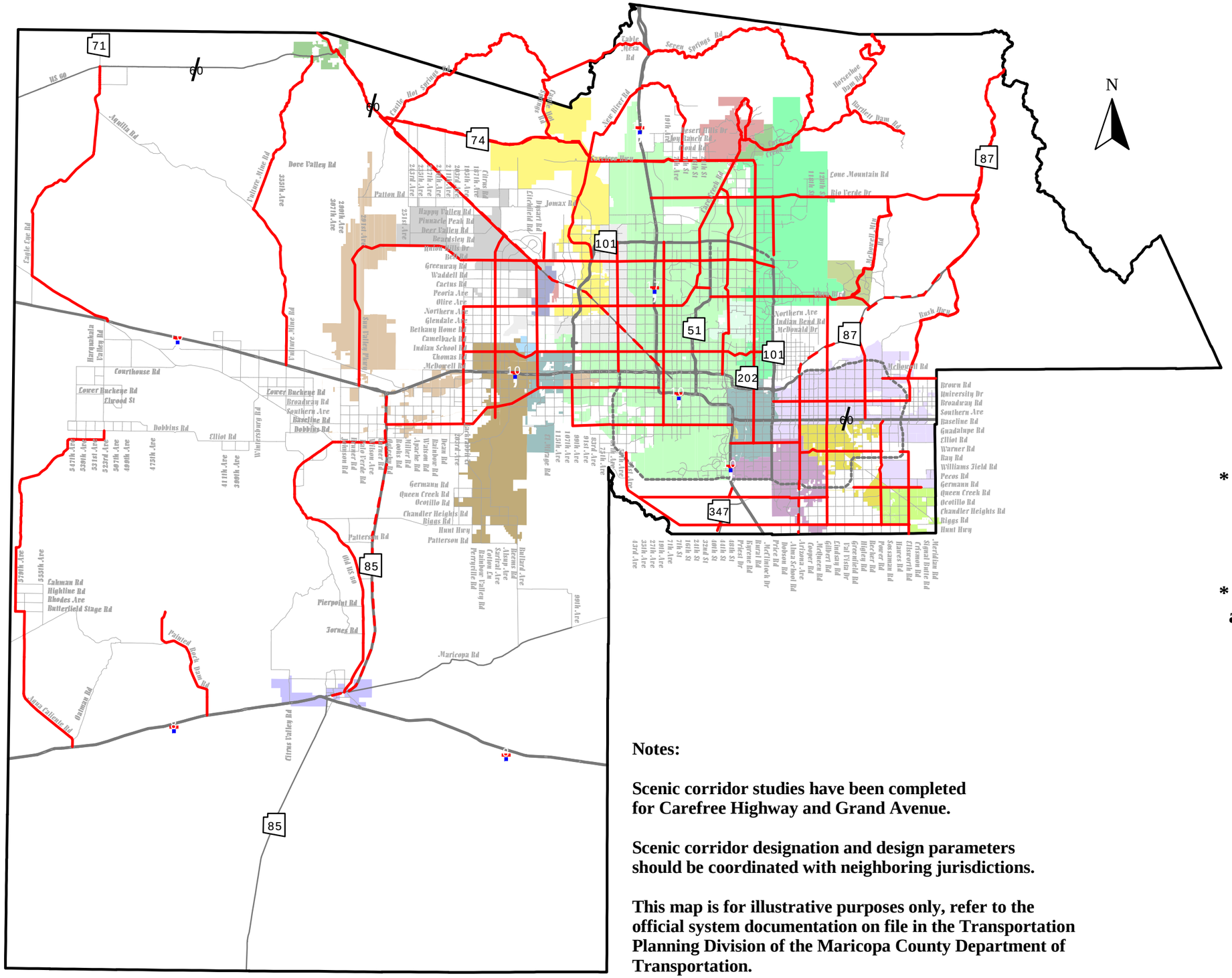


FIGURE 4-1
SCENIC/RECREATIONAL OVERLAY

To protect the scenic environment and to provide access to recreational facilities

Overlay Route

County Boundary

DESIGN PARAMETERS

*** A scenic easement of 50 feet shall be added on each side of the right-of-way to provide for a wider corridor of natural habitat preservation.**

*** Special signage identifying the roadway as a scenic corridor shall be included.**

Notes:

Scenic corridor studies have been completed for Carefree Highway and Grand Avenue.

Scenic corridor designation and design parameters should be coordinated with neighboring jurisdictions.

This map is for illustrative purposes only, refer to the official system documentation on file in the Transportation Planning Division of the Maricopa County Department of Transportation.

PUBLIC TRANSPORTATION OVERLAY

"The transit overlay identifies potential expansion to rural transit routes."

Discussion

The transit overlay is shown in the TSP as a "Potential Bus Route Overlay." The map shows bus routes in Sun City, Sun City West, and Sun Lakes.

Criteria for roadways on a transit overlay could include right-of-ways for bus pullouts, bus shelters, and future park-and-ride lot locations. Designation options include expansion of the current regional transit plan or the inclusion of all arterials.

The multi-modal overlay, which was listed as a possible overlay designation in the TSP, would include rail transit and bus rapid transit. Right-of-way protection would be the primary purpose of designating a roadway as multi-modal.

An overlay designating bus routes for the inclusion of bus pullouts and shelters would logically include all principal and minor arterial streets. Therefore, it would seem more logical to incorporate these features into the design standards for these facility types, which has been done in the MSRP.

Recommendation

A public transportation overlay, identifying potential regional rail or bus rapid transit corridors, is included in the MSRP (Figure 4-2).

Design Parameters

The Regional Public Transportation Authority (RPTA) developed a set of Prototypical Light Rail Station Plans in preparation for the March 14, 2000, Phoenix Transit Plan election. Using these plans as a guideline, the following design parameters will apply to all roadways on the public transportation overlays:

- The prototypical plans show a typical cross section for the light rail system constructed in the median of an existing street using 30 feet of right-of-way. This width could also accommodate two bus lanes in a bus rapid transit system. Thus, on all roadways identified as public transportation corridors, an additional 30 feet of right-of-way should be acquired.

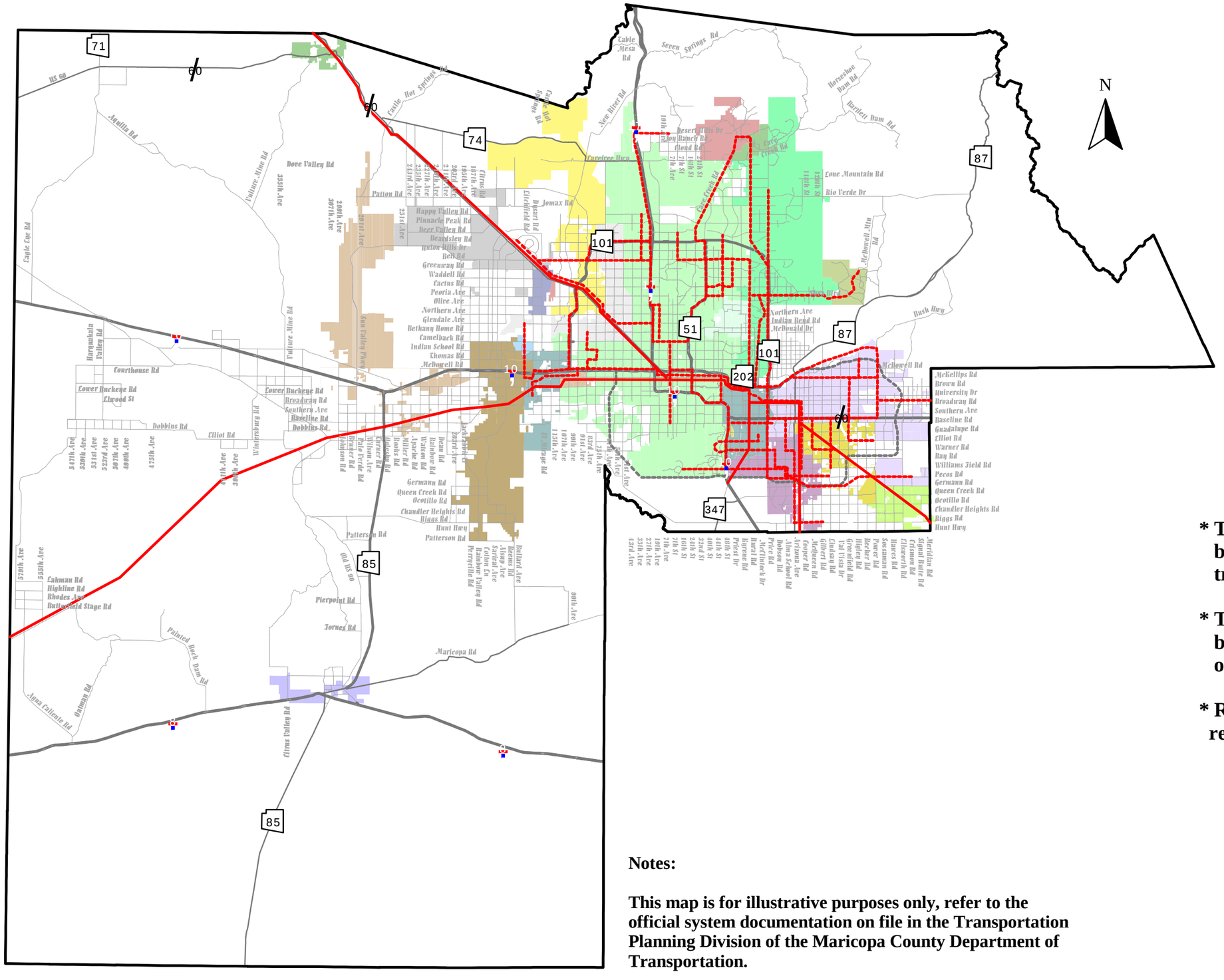


FIGURE 4-2
PUBLIC TRANSPORTATION OVERLAY

To identify potential regional rail or bus transit corridors

Existing Railroad Lines Potential Commuter Rail Corridors

Potential Rapid Transit Corridors Identified in MAG Fixed Guideway Plan

County Boundary

DESIGN PARAMETERS

*** The right-of-way shall be increased by 30 feet to provide for rail or rapid bus transportation.**

*** The right-of-way shall be increased by an additional 20 feet for 300 feet on approach to major intersections.**

*** RPTA should be contacted prior to reserving any additional right-of-way.**

Notes:

This map is for illustrative purposes only, refer to the official system documentation on file in the Transportation Planning Division of the Maricopa County Department of Transportation.

- The prototypical plans also show a variety of platform designs for loading and unloading passengers. The on-street center platform design, the widest of the on-street alternatives, requires about 50 feet of right-of-way and has a platform length of 300 feet. Therefore, on one side of intersections on streets identified as public transportation corridors, 50 feet of right-of-way should be acquired for a distance of 300 feet from the back of the crosswalk of the ultimate cross-street roadway width.

The prototypical plans also include an off-street layout that would require additional right-of-way. Before purchasing any additional right-of-way for a future transit corridor, the County should discuss the need with RPTA.

Statutory Issues

In 1995, the Arizona Legislature enacted a statute, ARS 28-6711. "Railroad construction along improved highway prohibited; exception," which prohibits the County from constructing "a railroad or street railway . . . along or on any portion of a highway, . . . except a crossing authorized by the board of supervisors." Thus, the concept of preserving right-of-way for a rail system, as specified by this overlay, may be illegal. Prior to implementing this overlay, the legality needs to be assessed.

AZTECH OVERLAY

"The AZTech overlay recognizes the special importance of roadways and corridors to implement transportation-related technology."

Discussion

The AZTech overlay is presented in the TSP as the ITS SMART Corridor Overlay. The AZTech data system has identified twenty-four "SMART" corridors in the region. AZTech has not yet defined the elements that will be installed in each of these corridors. Elements under consideration include:

- Vehicle Detection Systems (VDS)
- Closed Circuit Television (CCTV)
- Changeable Message Signs (CMS)
- Communications Infrastructure

Recommendation

The AZTech overlay, identifying corridors where technology will be incorporated to improve transportation service, is included in the MSRP (Figure 4-3).

Design Parameters

Pending identification of the elements that will be provided in each corridor, the identification of specific design parameters is not possible. During the design concept process of all roadways identified on the overlay, AZTech should be consulted regarding future needs.

OVERSIZE LOAD OVERLAY

The large or heavy vehicle overlay is listed, but not defined, in the TSP.

Discussion

An oversize load is defined as a vehicle having a gross weight of over 160,000 pounds or having dimensions larger than one of the following:

- 120 feet in length
- 14 feet in width
- 16 feet in height

Recommendation

The oversize load overlay is included in the MSRP (Figure 4-4). Routes designed for usage by oversize vehicles and restricted routes where oversize vehicle use is discouraged are included on the overlay.

Design Parameters

The following design parameters will apply to all roadways designated as oversize load overlay routes:

- Overhead equipment shall have a minimum clearance of 17 feet.
- Overhead equipment shall be supported from one side of the roadway only to allow for over-height vehicles to move around obstructions.
- Raised medians shall be located so as not to obstruct the movement of oversize loads.

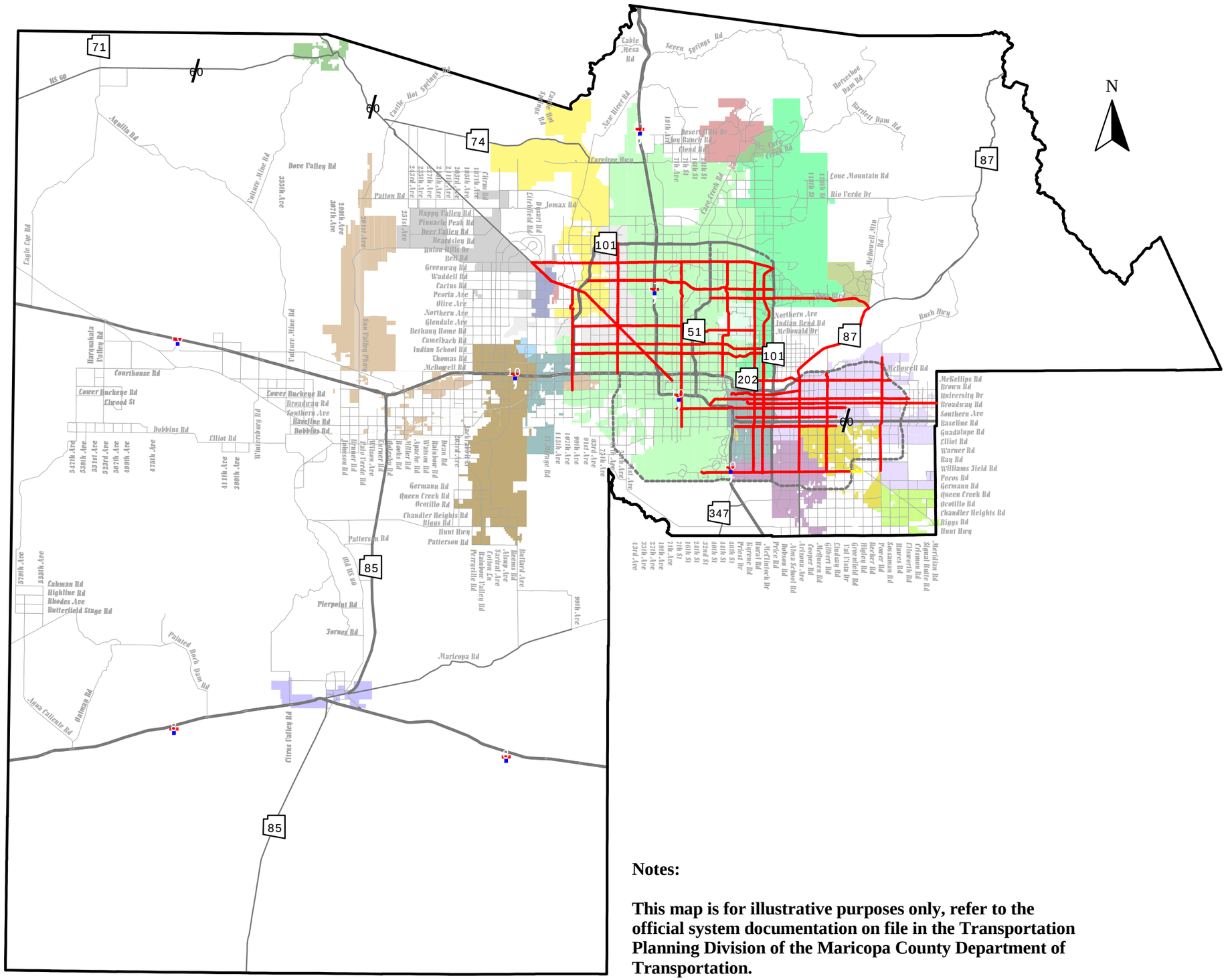


FIGURE 4-3
AZTECH OVERLAY

To identify corridors where technology will be incorporated to improve transportation service

Overlay Route

County Boundary

DESIGN PARAMETERS

*** AZTech should be consulted regarding ITS needs during the design concept phase of a project.**

Notes:

This map is for illustrative purposes only, refer to the official system documentation on file in the Transportation Planning Division of the Maricopa County Department of Transportation.

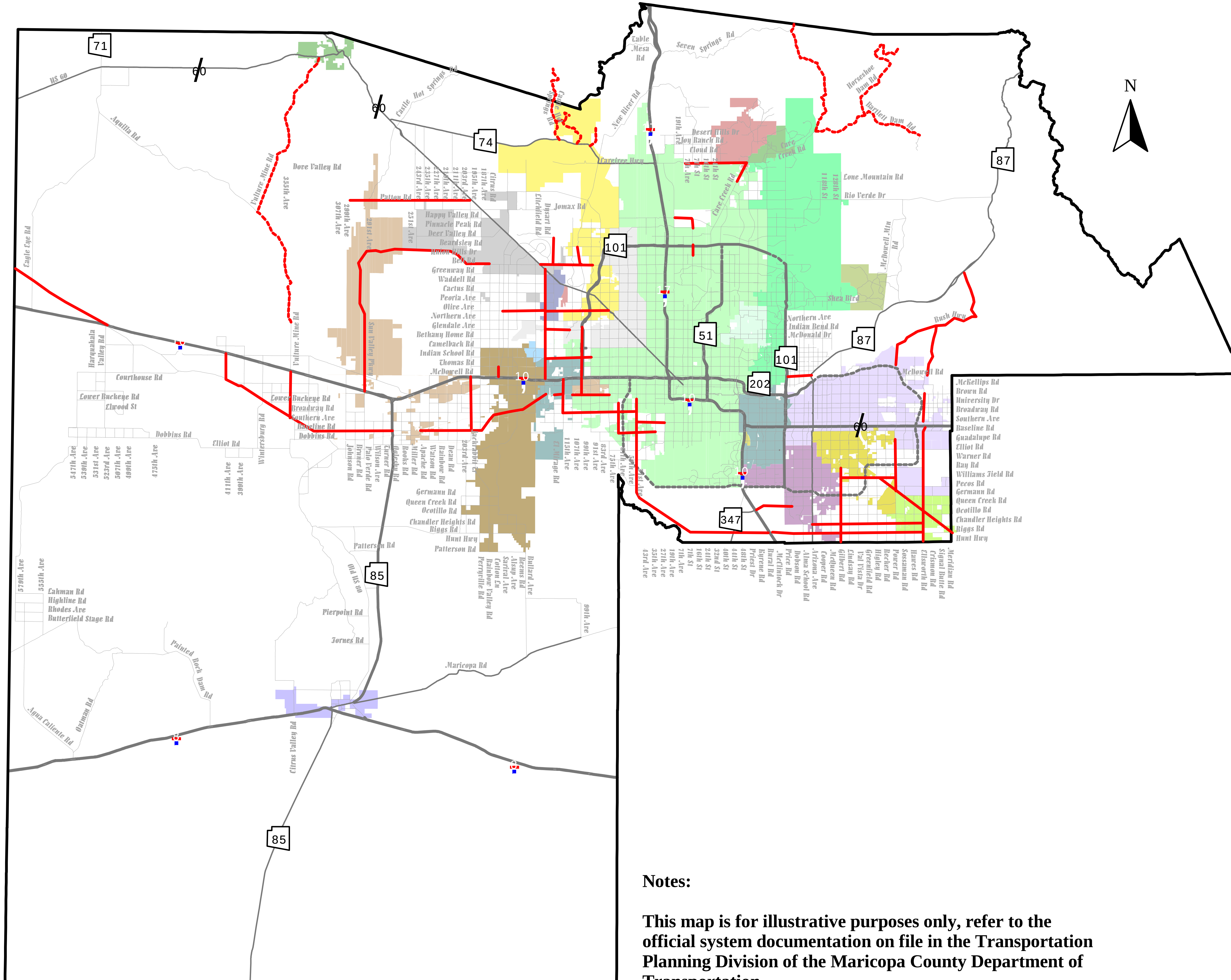


FIGURE 4-4
OVERSIZE LOAD OVERLAY

To identity routes designed for use by oversize vehicles or routes on which usage is restricted

Preferred Routes

Restricted Routes (Usage Discouraged)

County Boundary

DESIGN PARAMETERS

*** Overhead equipment shall have a minimum clearance of 17 feet.**

*** Overhead equipment shall be supported from one side of the roadway only to allow for overheight vehicles to move around obstructions.**

*** Raised medians shall be located so as not to obstruct the movement of oversize loads.**

Notes:

This map is for illustrative purposes only, refer to the official system documentation on file in the Transportation Planning Division of the Maricopa County Department of Transportation.

SCHOOL SAFETY OVERLAY

A school safety overlay is not mentioned in the TSP.

Discussion

The idea of a school safety overlay resulted from the consideration on vehicle restrictions. If successful, the concept could possibly be expanded to cover parks and libraries in the future.

The need for this overlay arises because schools in the rural areas of the County have logically been located on two-lane roadways, which, as the area develops, are becoming arterial streets. With development, traffic increases and the roadway needs to be widened.

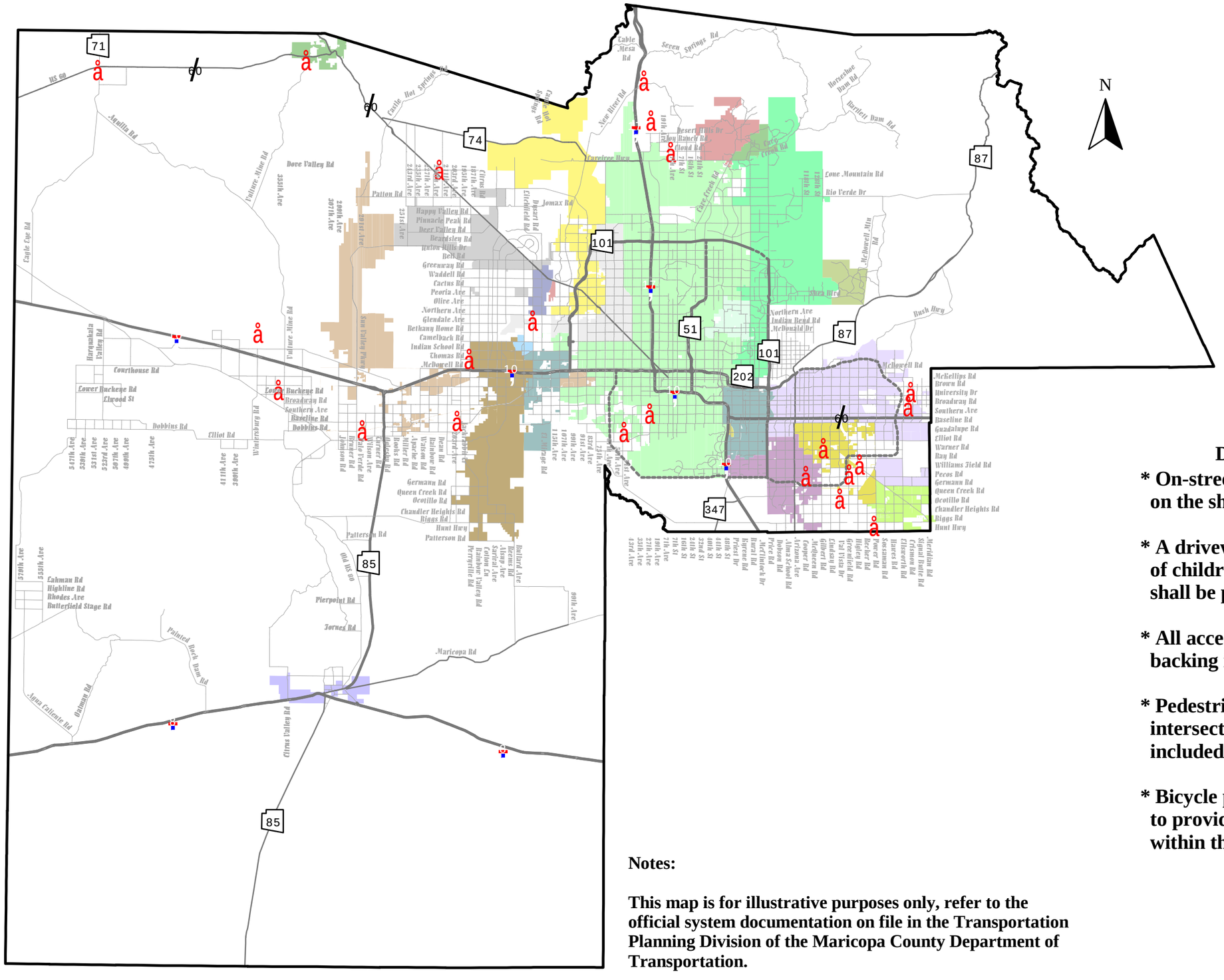
Recommendation

The school safety overlay, identifying sites where special design or operational criteria will be implemented to provide for safety, is included in the MSRP (Figure 4-5). Additional discussion on this issue is included in the discussion of general policies in Chapter 5.

Design Parameters

The following design parameters will apply during roadway reconstruction at all school sites designated on the school safety overlay:

- On-street parking, including angle parking on the shoulder, shall be eliminated.
- A driveway for the loading and unloading of children, by bus and private vehicle, shall be provided.
- All access shall be designed to eliminate backing into the roadway.
- Pedestrian crosswalks, when warranted, shall be provided at intersections, if possible.
- Bicycle paths, and/or lanes, shall be incorporated to provide access to all residential developments within the school service area as practicable.



Notes:

This map is for illustrative purposes only, refer to the official system documentation on file in the Transportation Planning Division of the Maricopa County Department of Transportation.

FIGURE 4-5
SCHOOL SAFETY OVERLAY

To identify sites where special design or operational criteria will be implemented to provide for safety

å **School**

County Boundary

DESIGN PARAMETERS

*** On-street parking, including angle parking on the shoulder, shall be eliminated**

*** A driveway for the loading and unloading of children by both buses and private vehicles shall be provided.**

*** All access shall be designed to eliminate backing into the roadway.**

*** Pedestrian crosswalks shall be located at intersections if possible. Flashers shall be included at unsignalized locations.**

*** Bicycle path and/or lanes shall be incorporated to provide access to all residential developments within the school service area as practicable.**

ROADS OF REGIONAL SIGNIFICANCE (RRS) OVERLAY

An RRS overlay is not mentioned in the TSP.

Discussion

The MAG Regional Council adopted the Roads of Regional Significance (RRS) concept and design guidelines in the spring of 1991, and by the Maricopa County Board of Supervisors in October 1992. Further analysis of this concept was completed in January 1996. The concept is a system of upgraded streets and roads to improve mobility in the urban areas, as well as into and out of the region.

The adopted RRS concept includes Urban and Gateway routes. Urban routes are designed to complement the freeway system and are three to six miles apart. The concept facilitates the development of a system of routes with higher design standards and higher speeds that will help ensure regional mobility. Gateway routes provide access to the region and need protection to maintain free flow access in and out of the region.

Recommendation

The RRS Overlay is included in the MSRP (Figure 4-6).

Design Parameters

Design guidelines for the Urban and Gateway RRS, as adopted by MAG, are presented in Table 4-1.

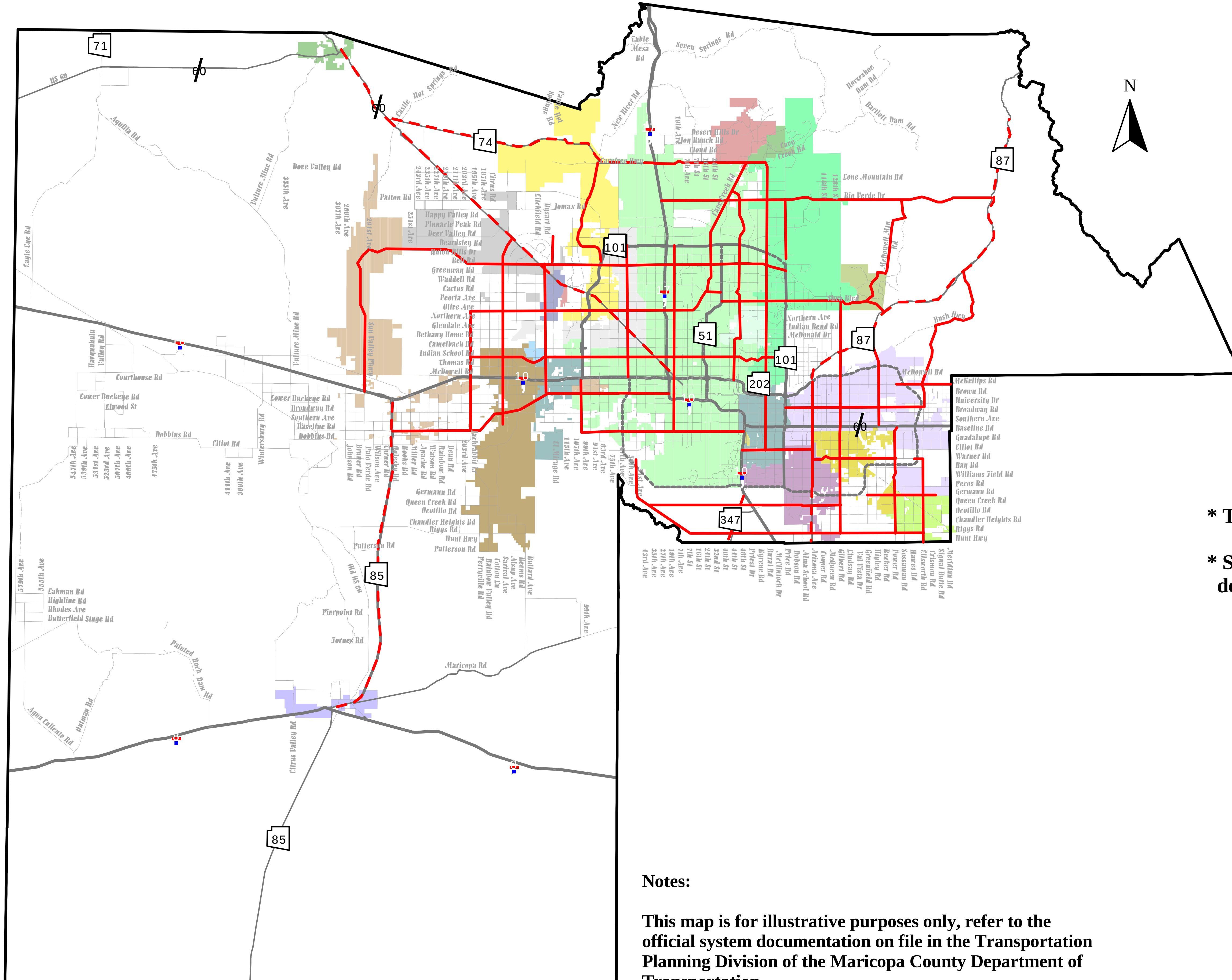


FIGURE 4-6
ROADS OF REGIONAL SIGNIFICANCE

To improve mobility in the region by providing a system of streets and roads

Existing Urban RRS

Existing Gateway RRS (Approved 4/28/99)

County Boundary

DESIGN PARAMETERS

*** The right-of-way width shall be 140 feet.**

*** See the MSRP Policy Document for other design parameters.**

Notes:

This map is for illustrative purposes only, refer to the official system documentation on file in the Transportation Planning Division of the Maricopa County Department of Transportation.

TABLE 4-1. ADOPTED DESIGN CONCEPT GUIDELINES FOR ROADS OF REGIONAL SIGNIFICANCE

Element	Urban Roads of Regional Significance	Gateway Roads of Regional Significance
Number of Lanes	Six lanes ultimate	Four lanes
Right-of-Way	140 feet (adopted 4/19/91)	140 feet
Lane Separation	Divided with breaks restricted to four per mile	Divided with breaks restricted to two per mile
Lane Width	12 feet	12 feet
Left Turn Lanes	At all locations where left turns are permitted	At all locations where left turns are permitted
Right Turn Lanes	At all locations where right turns are permitted and volumes warrant	At all locations where right turns are permitted and volumes warrant
Access	Eight per mile	Two per mile
Traffic Signal	Fully coordinated and progressed; restricted to mile and half-mile locations	Fully coordinated and progressed; restricted to mile and half-mile locations
Posted Speed	40 mph	55 mph, except in built-up areas
Parking	Prohibited	Prohibited
Transit	Provide for pullouts and queue hoppers when appropriate	Provide for pullouts and queue hoppers when appropriate
Signing	Uniform upgraded signing	Uniform upgraded signing
Bicycle Facilities	Bicycle facilities to conform with Arizona Bicycle Facilities Planning and Design Guidelines	Bicycle facilities to conform with Arizona Bicycle Facilities Planning and Design Guidelines
Mitigation	Buffering, landscaping and pedestrian paths as warranted	Buffering, landscaping and pedestrian paths as warranted